

IN THE CLAIMS:

Claim 1 (original): A piezoelectric substrate made of an anisotropic piezoelectric crystal material and comprising a thin resonating portion, and a thick annular portion integrally surrounding the outer marginal edge of said resonating portion to form a concavity in at least one of major surfaces of said piezoelectric substrate, characterized in that:

the inner wall of said annular portion gently slopes in the one crystal orientation more than in the other crystal orientation perpendicular thereto; and

said piezoelectric substrate is longer in said one crystal orientation than in said other orientation.

Claim 2 (cancelled without prejudice).

Claim 3 (currently amended): A piezoelectric resonating element comprising excitation electrodes formed on both sides of said resonating portion in the piezoelectric substrate of claim 1 [[or 2]] in opposed relation, lead electrodes extending from the excitation electrodes to one marginal edge of the piezoelectric substrate lengthwise thereof, and connecting pads connected to the lead electrodes, respectively, characterized in that the lead electrode extending from the excitation electrode formed on the side of said concavity is routed along said gently sloping inner wall of the annular portion.

Claim 4 (original): A piezoelectric resonator, characterized in that the piezoelectric substrate forming the piezoelectric resonating element of claim 3 is supported at one end lengthwise thereof in a cantilever fashion in a surface-mount package.

Claim 5 (original): A surface-mount piezoelectric oscillator, characterized by the provision of at least the piezoelectric resonator of claim 4, and an oscillation circuit.

Claims 6-34 (cancelled without prejudice).

Claim 35 (new): A piezoelectric resonator made of an anisotropic piezoelectric crystal material and comprising a thin resonating portion, and a thick annular portion integrally surrounding the outer marginal edge of said resonating portion to form a concavity in at least one of major surfaces of said piezoelectric resonator, characterized in that:

an inner wall of said annular portion gently slopes in one crystal orientation more than in another crystal orientation perpendicular thereto; and

said piezoelectric resonator is longer in said one crystal orientation than in said another orientation.

Claim 36 (new): The piezoelectric resonator according to Claim 35, wherein said piezoelectric crystal material is made of an AT-cut crystal material, said one crystal orientation is a z'-axis, and said another crystal orientation is an x-axis.

Claim 37 (new): The piezoelectric resonator according to Claim 35, further comprising:
excitation electrodes formed on both sides of said resonating portion,
lead electrodes extending from the excitation electrodes to one marginal edge of the piezoelectric resonator lengthwise thereof, and
connecting pads connecting to the lead electrodes, respectively; wherein
the lead electrode extending from the excitation electrode formed on the side of said concavity is routed along said gently sloping inner wall of the annular portion.

Claim 38 (new): The piezoelectric resonator according to Claim 36, further comprising:
excitation electrodes formed on both sides of said resonating portion,
lead electrodes extending from the excitation electrodes to one marginal edge of the piezoelectric resonator lengthwise thereof, and
connecting pads connected to the lead electrodes, respectively; wherein
the lead electrode extending from the excitation electrode formed on the side of said concavity is routed along said gently sloping inner wall of the annular portion.

Claim 39 (new): A piezoelectric resonator made of an anisotropic piezoelectric crystal material and comprising a thin resonating portion, and a thick annular portion integrally surrounding the outer marginal edge of said resonating portion to form a concavity in at least one of major surfaces of said piezoelectric resonator, characterized in that:

an inner wall of said annular portion gently slopes in the one crystal orientation more than in said another crystal orientation perpendicular thereto;

said piezoelectric resonator, by way of extending one side of said annular portion to form a jut-out portion, is longer in said one crystal orientation than in said another orientation; and

at least one concave notch open to both surfaces of the piezoelectric resonator is formed in a forward marginal edge of said jut-out portion.

Claim 40 (new): The piezoelectric resonator according to Claim 39, wherein said piezoelectric crystal material is made of an AT-cut crystal material, said one crystal orientation is a z'-axis, and said another crystal orientation is an x-axis.

Claim 41 (new): The piezoelectric resonator according to Claim 39, further comprising:
excitation electrodes formed on both sides of said resonating portion,
lead electrodes extending from the excitation electrodes to one marginal edge of
the piezoelectric resonator lengthwise thereof, and
connecting pads connected to the lead electrodes, respectively; wherein
the lead electrode extending from the excitation electrode formed on the side of
said concavity is routed along said gently sloping inner wall of the annular portion.

Claim 42 (new): The piezoelectric resonating element according to Claim 41, wherein
either one of the lead electrodes is routed via said concave notch to the opposite substrate surface
and connected to a connecting pad formed on said opposite substrate surface.